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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/997,972

11/29/2001

Xiaoju Wu

TI-33005 (032350.B372)

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12/12/2003

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EXAMINER

LATTIN, CHRISTOPHER W

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,972

Applicant(s)

WU, XIAOJU

Examiner

Christopher W Lattin

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, and 4-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6, 7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Malhi et al. (U.S. Patent 5,717,241).

Malhi et al. teaches a method for manufacturing a semiconductor device, comprising forming a buried layer 36 of a semiconductor substrate 32; forming an active region 48 adjacent at least a portion of the buried layer 36; forming an isolation structure 39 by either STI or LOCOS (see column 8) adjacent at least a portion of the active region 48; forming a gate oxide 50 adjacent at least a portion of the active region; forming a polysilicon layer 52 adjacent at least a portion of the gate oxide; removing at least a portion of the polysilicon layer to form a polysilicon definition structure 52 by masking a first portion of the polysilicon layer with mask 81, leaving a second portion of the polysilicon layer unmasked; and removing the second portion of the polysilicon layer, wherein the polysilicon definition structure at least substantially surrounds and defines an emitter contact region; forming an implant region 62 of the emitter contact region, wherein the implant region is self-aligned; implanting a base contact region 54,

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wherein the base contact region is proximate an outer edge of the polysilicon definition structure, forming one or more spacer structures 56 adjacent the polysilicon definition structure, forming an emitter contact at the emitter contact region (see column 8 line 67-column 9 line 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malhi et al. (U.S. Patent 5,717,241).

Mahli et al. teach structure parameters on the same order as and, in fact, smaller than that presently claimed. Official Notice is taken that forming the feature sizes claimed are not critical to the presently claimed method and, regardless, would have been well known to those skilled in the art at the time of the invention and in light of the teachings of Malhi et al.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malhi et al. (U.S. Patent 5,717,241) in view of Wolf (Silicon Processing for the VLSI Era Volume 3: The Submicron MOSFET, Sunset Beach, CA, 1995, p.p. 634-635).

Malhi et al. is applied supra and teaches all of the limitations of claim 11, except for the formation of nitride spacers. Wolf teaches the formation of nitride spacers to enhance the dielectric capabilities of the spacer. It would have been obvious to one skilled in the art at the time of the invention to form spacers of nitride in order to increase the dielectric constant and thus better insulate the gate from the adjacent contacts taught by Malhi et al.

Response to Arguments

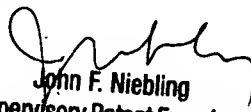
Applicant's arguments filed 9/22/2003 have been fully considered but they are not persuasive. Applicant has amended the independent claim to include the limitation of "forming an implant region of a base contact region, wherein the base contact region is proximate an outer edge of the polysilicon definition structure." Thus, the claims do not require that the base implant region be "adjacent", but merely "proximate" or close, to the edge. Such a distinction is emphasized in the presently claimed invention as both terms are used to apparently describe different degrees of closeness. The Mahli et al. reference teaches that the base is close or proximate to the edge of the polysilicon structure in that it is in the surface layer and not, for instance, on the back surface of the substrate. It is additionally noted that the term "outer edge" is sufficiently broad to include the area on either side of any portion of the structure that would be in contrast to an inside region (for instance only the area directly under the structure) since the metes and bounds of the term outside edges is not sufficiently defined.


Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Lattin whose telephone number is (703) 305-3017 ((571) 272-1673 after 02/03/2004). The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached at (703) 308-3325 ((571) 272-1679 after 02/03/2004). The fax number for this Group is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.


John F. Niebling
Supervisory Patent Examiner
Technology Center 2800

CWL 
December 8, 2003